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ABSTRACT

A cooperative project was undertaken by Parkway West Area Technical School (PWATS) and the Community College of Allegheny County (CCAC) to plan and develop a task level articulation agreement for the welding sequences extending from the high school to the post-secondary levels. Project procedures, coordinated by a Welding Craft Advisory Committee made up of instructors and employers, involved: (1) a survey of area employers to identify the task competencies required of welders: (2) the selection or development of performance objectives and criterion-referenced measures for each of the identified competencies: (3) the establishment of a hierarchy for these competencies: (4) the evaluation of existing courses of study: and (5) the reorganization of courses of study so that the two-year welding program at PWATS was directly equivalent to CCAC's Welding I and Welding II. These procedures overcome the shortcomings of traditional high school/college articulation agreements in that a student's subject mastery is proven rather than assumed and that the tasks are identified by employers rather than educators. The report evaluates the initial implementation of the agreement, examines CCAC's plans for articulation agreements in other vocational areas, and discusses the staff development efforts required in the statewide implementation of such agreements. (JP)

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FINAL REPORT

Task Level Articulation in Welding between the Community College of Allegheny County, College Center-North, and Parkway West Area Technical School

(84-8820)

L. L. Whitworth

Community College of Allegheny County, College Center-North

Pittsburgh, Pennsylvania

August, 1979

Pennsylvania Department of Education

Bureau of Vocational Education

Research Coordinating Unit

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

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ABSTRACT

84-8820 Task Level Articulation in Welding Between CCAC, CCN, and Parkway West Area Technical School

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$20,026 - Federal

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7/1/78 - 6/30/79

This project was designed to plan and develop task level articulation between the Welding curriculum of College Center-North and that of Parkway West Area Technical School, thus enabling each interested Parkway West student to enter the CCN Welding program at a specific advanced level based upon his task mastery and eliminating the duplication of instruction and inaccurate placement of students in the welding sequence extending from the secondary school through the postsecondary school. As a first step in progressing toward this goal, the Welding curriculum at each school was evaluated and expressed in the form of tasks to be mastered. This was completed after a thorough analysis of Allegheny County welding employers identified pertinent tasks required for welding employment.

Objectives

This project was planned to develop task level articulation, founded upon the initiation of competency-based programming between the Welding courses of study of Parkway West Area Technical School and the Community College of Allegheny County. It sought to meet this goal by accomplishing the following objectives:

a. Conduct task analysis among welding employers and welders in Western Pennsylvania to determine the tasks required in performance of job

duties;

b. Using performance objectives, measures, and performance guides for Combination Welding in the V-TECS catalog as a foundation, make required modifications and select those that are appropriate to the needs of local Western Pennsylvania welding employers;

c. Develop additional performance objectives, criterion-referenced measures, and performance guides required by regional needs of industry;

d. Develop suitable evaluation criteria meeting industry standards for each task:

e. Develop detailed course of study for College Welding program that will reflect its nature as a task-based competency program;

f. Review the already constructed competency-based course of study for Parkway West's Welding/Metal Fabrication program to determine the alterations in tasks and duties required as a result of the task analysis conducted as part of this project;

g. Studying the College's and Parkway West's courses of study, determine the hierarchy of tasks and organize them accordingly so as to make the two-year Welding/Metal Fabricating program at Parkway West directly equivalent in competency development to Welding I and Welding II in the College program. Further determine the hierarchy of tasks, duties and competencies in the higher level College Welding courses.

Outcomes

Guided by a College project coordinator and assisted by a Welding Craft Advisory Committee consisting of a welding faculty member from Parkway West but made up largely of employers of welders in Allegheny County, all seven objectives identified above were successfully met. The result was the full task level articulation of Welding programs at Parkway West Area Technical School and the Community College of Allegheny County.

Audience

The curriculum materials as well as this final report would be of value to vocational educators, especially curriculum planners and instructors in Welding and Metal Fabrication, in secondary and post-secondary schools.

Publications and Available Materials

1. Final Report
2. Welding Course of Study

PROCEDURES AND RESULTS

Introduction

As soon as the Community College of Allegheny County, College Center-North (henceforth referred to as CCAC, CCN) received notification in July, 1978, that its proposed project had been funded, it appointed a part-time Coordinator of the Task Level Articulation Project and a part-time secretary. Mr. Robert Kinsey, Welding instructor at CCN, was appointed Project Coordinator and charged with meeting all project objectives while reporting directly to CCN's Director of Technical Programs.

The Welding program was selected for articulation for a number of reasons: 1. As the most popular vocational program at CCN, more students were enrolled in Welding than in any other program and more students could therefore benefit through task level articulation of Welding than of any other program; 2. Projections indicated that Welding will continue to be not only the College's largest but also the most rapidly growing vocational program; 3. More students were expected to enroll in the College Welding program with already developed skills capable of evaluation through task level analysis than in any other program; 4. As a program much more skill-oriented than theory-oriented, it was thought that the tasks needed in the employment sector could be readily identified.

The general duties carried out by the Project Coordinator and the results achieved, presented in roughly chronological order, make up the bulk of this section of the report. While the third person impersonal is used throughout this report, it is understood that the coordinator, with the counsel of the College's Director of Technical Programs and the members of the Welding Craft Advisory Committee and the Welding Task Level Articulation

Committee, carried out all major objectives of the project.

Advisory Committee

A Welding Craft Advisory Committee was formulated to assist in all phases of the project. It was constructed so as to represent Allegheny County vocational education, welding education, and the welding trade. Special efforts were made to identify for inclusion the most professionally representative group of employers and supervisors in welding; these efforts were highly successful, as the make-up of the committee makes clear. Members of the committee are listed in Appendix A.

The careful formulation of the advisory committee resulted in extremely professional assistance being rendered by this group. They were particularly helpful in performance of the following functions: 1. Evaluation and analysis of the welding tasks identified by welding employers; 2. Establishment of the performance standards for each task, in conjunction with the coordinator and welding instructors; 3. Validation of the evaluation techniques and criteria established by instructors according to the American Welding Society specifications; 4. Concurrence with the performance guides developed for each task by the coordinator and instructors; 5. Recommendations concerning resource needs for program.

Task Analysis

The V-TEC's catalog in Combination Welding was used as the primary document for the development of the task analysis. Using the tasks identified in the V-TEC's catalog in Combination Welding as a basis, the survey form to be mailed to area welding employers was constructed. Approximately 72 employers received forms; 17 completed and returned them. The survey form appears as Appendix B. Raw data from the returned surveys appears as Appendix C.

Twenty-five telephone interviews took place and seven meetings were held with welding employers.

Analysis of the data suggested two major conclusions: 1. While most welding tasks required in area industry were being taught in the CCN Welding program, different emphasis would have to be placed upon some of them to better prepare students for the job market; 2. In a few cases, tasks would have to be introduced into the program and some content could be cut because it no longer reflected the needs of area industry. Analysis of data was aided by members of the Welding Craft Advisory Committee. As full-time professionals in welding who employ and supervise large numbers of welders, they were best able to analyze coordination of the responses given.

Objectives, Measures, Guides, and Evaluation Criteria

Next, performance objectives, criterion-referenced measures and guides from the V-TEC's Combination Welding catalog as well as of the coordinator's own construction were correlated with the pertinent tasks identified in the task analysis. Then, with the assistance of welding instructors at CCN and Parkway West Area Technical School (henceforth referred to as PW), evaluation criteria for each task were developed. Coordinating objectives, measures, and guides with tasks and developing evaluative criteria were relatively easy, with many of the items being extracted from the V-TEC's catalog and the remainder being developed by the coordinator and welding instructors.

Then the CCN welding program was ready to be totally transformed into a competency-based model, and PW's already existing competency-based program in welding was ready to be re-evaluated and determination made as to which of the competencies were inappropriate or in need of revision.

Hierarchy of Tasks

As a final stage of the project, a Welding Task Level Articulation Committee was formulated to sort the tasks and duties, determine a level of hierarchy for the competencies involved and order them accordingly. The committee consisted of welding instructors and vocational administrators at CCN and PW. With the exception of the College project coordinator and the College Director of Technical Programs, all were paid a per diem wage for their efforts as committee members. See Appendix D for a list of the members of the committee.

The net result of all work was a fully task articulated competency-based set of welding programs at CCN and PW. The CCN and PW welding courses of study are available for examination at College Center-North.

CCN is willing to embark on an ambitious long-range plan of task level articulation with confidence that it can achieve its goals just as it has in its first funding year which ended on June 30, 1979. In contemplating a forward-looking ten-year plan, CCN would like to build upon the successes of the first year of the project in which all major project objectives associated with task level articulation of the Welding programs at CCN and PW were reached.

Examination of the "Self-Evaluation of Task Level Articulation Project" for the first year of the project demonstrates that all nine of the listed activities were successfully performed in relation to the articulated welding programs at CCN and Parkway West. By way of a summary statement of self-evaluation:

1) The coordinator formulated a strong Welding Craft Advisory Committee;
2) The craft committee, the coordinator, and the welding faculty from CCN and PW completed the task analysis and established performance standards for each welding task which were acceptable to the American Welding Society;

3) They designed evaluative techniques and criteria meeting welding code specifications of the American Welding Society;

4) They identified performance guides using the V-TEC's Combination Welding Catalog;

5) The craft committee, in addressing resource needs, recommended additional processes and welding laboratory space at CCN in order to facilitate future articulation efforts;

6) The faculty, in considering alternative learning activities, suggested employment of the Hobart PAT sound film system which can be used by individual students in the CCN Learning Resource Center.

All procedures completed, the articulated Welding program will be offered in September, 1979, with student record of performance forms being used as the central means of recognizing competencies of enrolled students. (See Appendix E for the CCN Student Performance Form.)

CONCLUSIONS

Superiority of Task Level Articulation

The major reason for CCN's original and continued interest in task level articulation is that it is far superior in theory and in practice to the kinds of program articulation agreements that CCN has been using for the past three years. The precise placement of students in task level articulated programs contrasts sharply with more traditional articulation efforts used at CCN. More traditional arrangements require that secondary school instructors and counselors attest to the performance standing of the student seeking admission to the College program, while the high school transcript confirms that the student has completed the secondary school course of study and is therefore ready to enter an advanced course in the College program.

Such has been the case in agreements formulated with nine secondary schools in Allegheny County. The programs and the school districts/technical schools involved include: Secretarial Science (North Allegheny, North Hills, Quaker Valley, Shaler, Vincentian, Mount Alvernia); Applied Electronics (Parkway West Technical School, Beattie Technical School, Steel Valley Technical School); Heating and Air-Conditioning (Parkway West Technical School, Beattie Technical School) and Auto Mechanics (Parkway West Technical School, Beattie Technical School, Steel Valley Technical School). Two major shortcomings of the traditional system are obvious. First, that a student has completed a secondary school vocational program does not guarantee his mastery of tasks, although the system assumes such mastery. Second, since the employers are not the starting point in determining the tasks to be learned, and, in fact, are rarely consulted, not infrequently students entering the job market do not possess all basic skills required in constantly changing areas of employment. Task level articulation arrangements, in contrast, begin with an analysis of tasks required by employers in the geographical area in which training occurs.

Task level articulation in welding, while fully implemented into the curriculum, has been only partially tested by an entering class of students. The full test will occur as the 1979-80 academic year beginning in September, 1979 progresses. Based upon a partial test thus far, there is every expectation that it will fare extremely well. A number of students who have completed Parkway West Technical School's welding program have applied to CCN's program for September, 1979 enrollment. Task level articulation has allowed these students to be placed far along in CCN's program because of their demonstrated mastery of tasks. Unnecessary repetition of content, with the attendant student frustration, will thus be avoided; students will already have partially completed the College program on the first day of the semester

and will be that much closer to gainful employment. It is anticipated that additional students from Parkway West will enroll in the College program during the 197[illegible]80 academic year and that the task level arrangements will be equally successful for them. If placement of Parkway West students in CCN's continues to function smoothly, then task level articulation in welding can be judged a qualified success. The success will be total and unqualified when the first CCN welding graduates begin entering the job market. Then area welding employers will be surveyed to determine the task mastery of our graduates, their readiness for careers in welding, and the employers' satisfaction with their skill development. Should results of this survey be positive, then articulation efforts will be considered a total success.

Of the many strengths that faculty and administrators at both CCN and PW recognize in task level articulation, perhaps they are most gratified with 1) the ease of entry of students into and exit from the programs, 2) the elimination of duplicated instruction at the two educational levels, 3) the recognition that the employer must be the cornerstone in determining tasks which students should master, 4) and the heightened integration of programs between the levels.

Secondary school administrators at PW are especially pleased with task level articulation because it motivates more of their graduates to continue their technical training at the post-secondary level. This better equips them for the continuing changes in the technical job market. They were so satisfied with the results of the welding articulation that they eagerly support continued articulation arrangements. Once vocational students in the secondary schools are informed about the principles and benefits of task level articulation, they will become much more interested in continuing their education, knowing that they will move directly into new, challenging and employer-ordained tasks as they work at the college level.

College Center-North's Performance

A few major conclusions can be reached concerning the quality of CCN's efforts during the project year. Support personnel in the form of members of the Welding Craft Advisory Committee and the Task Articulation Committee were critical to the success of this effort. Carefully selected by the coordinator and then motivated by appeals to their professional responsibility, members of the Craft Advisory Committee performed at the highest level of competence in analyzing tasks, specifying performance standards, approving evaluative techniques and performance guides, and identifying resource needs. A less competent advisory craft committee would have impaired the success of the project. The Task Articulation Committee, consisting of vocational educators and welding instructors, formulated the hierarchy of tasks with clear logic.

By way of noting a shortcoming: A narrow focus on types of students will be remedied as few changes in the direction of recruitment will be made in future articulation projects. Stronger efforts will be made to attract non-traditional adult students with no training or experience and special populations, including minorities. Adults with vocational job experience will also be recruited and will be able to begin at a task level appropriate to their task mastery.

Special efforts will also be made to lessen the effects of sex bias and sex stereotyping in CCN's vocational programs. In the case of the Welding and Heating & Air-Conditioning, for example, program recruiters will work to attract females to these traditionally male-dominated fields. One avenue of recruitment will be a Displaced Homemaker Program operated out of another division at CCN. This counseling and job placement program for older women displaced through death of a spouse or divorce will be coordinated closely

with the articulated programs because it should serve as a fertile source of students. Additional recruitment of females will be made in the area high schools and among public employment services.

Administrative Commitments

The intention to broaden the focus on types of students to be enrolled in future articulated programs clearly exists at CCN. Until the time when all of their programs can be fully task articulated, commitment exists on the part of CCN's administration and the administrators of the nine secondary schools who currently share articulation arrangements to maintain their course articulation agreements. Specific administrative commitment from CCN and Parkway West to continue task level articulation begun in 1978-79 is contained in the letters which appear as Appendix F.

RECOMMENDATIONS

College Center-North's Task Level Articulation: The Future

Based upon the clear merits of task level articulation and the success of CCN's efforts during the 1978-79 funding year, CCN wishes to extend task level articulation arrangements until ultimately all of its vocational programs are articulated with interested secondary schools in Allegheny County. A tentative five-year plan identified for CCN calls for approximately 60% of the project time in each of the next five years (July, 1979 - June, 1984) to be devoted to completing the detailed implementation of competency-based task level articulation for a given program of study which was initiated in the preceding year. The remaining 40% of the project time in each year will be spent laying the foundations for and establishing the broad outlines of the articulation agreement for a new program of study which will be completed in the following year.

The specific direction of the five-year plan: July, 1979 - June, 1980: Complete Metal Fabrication articulation and initiate Heating & Air-Conditioning arrangements with Parkway West Technical School; July, 1980 - June, 1981: Complete Heating & Air-Conditioning articulation and initiate Applied Electronics arrangements; July, 1981 - June, 1982: Complete Applied Electronics articulation and initiate Secretarial Science arrangements; July, 1982 - June, 1983: Complete Secretarial Science articulation and initiate Auto Mechanics arrangements. July, 1983 - June, 1984: Complete Auto Mechanics articulation. In the portion of the year (July, 1983 - June, 1984) which remains, comprehensively review, evaluate and revise all task level articulation arrangements in effect at the time. Beyond the period extending from 1979 - 1984, it is possible to project two general directions CCN might take in task level articulation. First, given the anticipated continued commitment of CCN's administration, the following two years might see a broadening of articulation efforts for five programs (Welding, Heating and Air-Conditioning, Applied Electronics, Secretarial Science, Auto Mechanics) to include a far larger number of area secondary schools. In the case of Secretarial Science, agreements could be made with another 10 school districts included within the 10 square mile sector of northern and western Allegheny County which represents the service area of CCN. For the remaining four programs, arrangements with Connelly Skills Center and Forbes Road Technical School could be formulated. Second, with the expected growth in vocational/technical education that the next five years should bring to Allegheny County and the new programs of study the CCN envisions, it is conceivable that the years 7-10 in this projection might see task level articulation in contemplated programs not yet a part of CCN's Vocational/Technical Division, such as Dental Assisting and Institutional Baking.

Curricular Support

It is further recommended that two secondary, but nonetheless significant, goals for the contemplated long-term task level articulation efforts at CCN be considered. While they are alluded to in the "Self-Evaluation of Task Level Articulation Project", they are not treated in detail. Thus, in addition to aiming to reach the nine objectives on the self-evaluation form, CCN plans to consider two additional goals annually:

1. Coordinate audio-visuals and resource materials with the competency-based curriculum after a highly organized study of all materials available commercially and the construction of additional materials specifically designed for the curriculum under development;
2. Provide an organized staff development program for all full-time and part-time faculty, the general purpose of which will be to provide teacher competencies for implementing CBE, but with specific purposes which include discussing the use of the V-TEC's catalogs, explaining the implications of the task level articulation arrangements for classroom and laboratory instruction, discussing the duties and responsibilities of members of the advisory craft committee, and increasing awareness of continually improving audio-visual and library resources.

Goal #1 is intended to provide each new competency-based program at CCN with the finest supporting audio-visual and resource materials possible. Materials will be evaluated for overall quality and for the degree to which they coordinate closely with the tasks and duties for each course in the curriculum. In order to achieve the highest degree of coordination, it is expected that many materials will be constructed at CCN. Advanced students will participate in the construction of such materials. Goal #2 recognizes the critical role of a well-trained faculty in implementing task level articulation programming and the need to guarantee their complete under-

standing of its implications for their teaching. Goal #2, with its purpose of developing faculty skills in implementing competency-based programming through staff training programs, will be vigorously pursued, using the checklist "Teacher Competencies for Implementing CBE" as a guide to the training seminar format. All concerned faculty will learn the skills of competency-based instruction by hands-on learning experiences intended to teach the seven teacher competencies.

Potential for Task Level Articulation in Pennsylvania

CCN strongly recommends to other educational institutions in Pennsylvania the consideration of task level articulation between secondary vocational schools and public and private post-secondary schools within the various counties in the state. In Allegheny County, while there is only one public community college (CCAC) offering a wide range of vocational/technical programs of the kind offered in the area vocational technical schools, many private post-secondary institutions (colleges and proprietary schools) might consider the benefits of task level articulation efforts for their students in specialized vocational programs, and for prospective employers. Among private four-year colleges, Robert Morris College might consider task level articulating its Secretarial Science program, among others, and all of the colleges in the area could articulate Accounting programs with those offered in the area secondary schools. Private proprietary schools, of which there are a large number in Allegheny County, have the greatest opportunity for task level articulation. Art Institute of Pittsburgh (Commercial Art), Median School (Medical Assisting, Dental Assisting), Dean Institute of Technology (Drafting, Welding Technology), Rosedale Technical Institute (Automotive Technology), Triangle Technical Institute (Heating & Air-Conditioning) head the list of proprietary schools that totals more than 60 in Allegheny County and the programs that

could be easily articulated. With the Pittsburgh Public Schools initiating magnet schools in September, 1979, which strongly emphasize vocational programs of study, the opportunity for all post-secondary schools to investigate task level articulation becomes all the greater.

Without placing artificial constraints on secondary and post-secondary schools in a given geographical area, cooperative arrangements made between schools at the same level could result in lateral task level articulation, facilitating transfer of a student from one secondary school to another and from one post-secondary institution to another with ease of entry and exit and avoidance of repeated course content.

Training and Promotion

Recognizing that most change within educational institutions starts at the higher rungs of the administrative ladder, CCN recommends that the Department of Education, as soon as is administratively possible, sponsor two types of seminars and workshops in task level articulation throughout the state of Pennsylvania: One, for chief administrative officers associated with vocational programs in post-secondary and secondary schools, which would introduce the principles of task level articulation and the benefits for institutions, students and employers; a second, for middle management personnel and concerned vocational instructors from institutions in which chief academic officers become committed to task level articulation, which would discuss the pragmatics of establishing the program and carrying it out successfully. Promotional literature should also be made available to educational institutions as a second way of overcoming the great shortage of information on task level articulation and of motivating greater participation in state-wide articulation efforts.

A continuation of the successes of the type described in this report correctly assumes College Center-North's full commitment to total competency-based programming in all departments of the Vocational/Technical Division and to task level articulation with all interested secondary schools in Allegheny County. As a result, repetition between the curricula at the secondary and college levels will be eliminated. There will be a continuity of task-learning of increasing difficulty replacing the often haphazard and illogical progression that now exists. In addition, the close working relationships with craft advisory committees and projects will insure the pertinence of the tasks being taught and the effectiveness of the teaching methods being employed. By having inefficiency eliminated, students will be more prepared for the demands of industry and will be employable much more rapidly. Given the benefits accruing from task level articulation, CCN is fully committed to the concept and its activities over the short term and the long term, even after special project funding is terminated.

APPENDIX A

WELDING/METAL FABRICATION ADVISORY COMMITTEE

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APPENDIX B

WELDING ARTICULATION SURVEY

COMMUNITY COLLEGE OF ALLEGHENY COUNTY

CENTER-NORTH

Please check answers in the right-hand column.

1. Welding processes used at your company:

a) Manual Arc (Covered Electrodes)	a) _____
b) Manual Semi-Automatic Submerged Arc	b) _____
c) Manual Flux-Cored (With or Without CO_2 Shielding)	c) _____
d) Manual Tungsten Inert Gas (TIG)	d) _____
e) Manual Inert Gas Solid Wire (TIG)	e) _____
f) Full Automatic Adaptations of (b) thru (e)	f) _____
g) Resistance Welding Systems	g) _____
h) Acetylene Gas	h) _____
i) Vertical Automatic Systems (Electroslag, Electrogas, Etc.)	i) _____
j) Electron Beam	j) _____
k) Ultrasonic	k) _____
l) Others - Specify	l) _____

2. What is your present total complement of welders? _____

3. Brief description of welding test given to newly-hired welders:

a. Bevel plates with backing strip?	a) _____
b. Bevel plates without backing strip?	b) _____
c. Mild steel plate thickness?	1/4" _____
	3/8" _____
	1/2" _____
	3/4" _____
	1" _____
d. Degree of bevel angle? (Included)	45° _____
	60° _____
	75° _____
e. Electrode size?	3/32" _____
	1/8" _____
	5/32" _____
	3/16" _____
	1/4" _____

f. Electrode type?

6010 _____
7018 _____

g. Position of test?

flat _____
vertical _____
horizontal _____
overhead _____

h. How is specimen tested:

guide bend _____
X-ray _____
dye penetrate _____
visual _____

4. Please explain the type of business in which you specialize:

Please write additional notes or comments below:

APPENDIX C

RAW DATA FROM SURVEY RESPONSES

	Number
Questionaires Mailed	72
Questionaires Returned No Longer in Business	15
Net Questionaires Received by Business	57
Questions Answered and Returned	17

con't Raw Data From Survey Responses

WELDING ARTICULATION SURVEY

COMMUNITY COLLEGE OF ALLEGHENY COUNTY

CENTER-NORTH

Please check answers in the right-hand column.

		Number of Responses	Percent of Responses
1. Welding processes used at your company:			
a) Manual Arc (Covered Electrodes)	a)	17	100
b) Manual Semi-Automatic Submerged Arc	b)	17	58
c) Manual Flux-Cored (With or Without CO_2 Shielding)	c)	17	70
d) Manual Tungsten Inert Gas (TIG)	d)	17	64
e) Manual Inert Gas Solid Wire (TIG)	e)	17	52
f) Full Automatic Adaptations of (b) thru (e)	f)	17	35
g) Resistance Welding Systems	g)	17	17
h) Acetylene Gas	h)	17	41
i) Vertical Automatic Systems (Electroslag, Electrogas, Etc.)	i)	17	11
j) Electron Beam	j)		
k) Ultrasonic	k)		
l) Others - Specify	l)		
2. What is your present total complement of welders?			
3. Brief description of welding test given to newly-hired welders:			
a. Bevel plates with backing strip?	a)	17	17
b. Bevel plates without backing strip?	b)	17	29
c. Mild steel plate thickness?	1/4"	17	5
	3/8"	17	23
	1/2"	17	29
	3/4"	17	17
	1"	17	11
	1-1/2"	17	5
d. Degree of bevel angle? (Included)	45°	17	29
	60°	17	29
	75°	17	5
e. Electrode size?	3/32"	17	23
	1/8"	17	29
	5/32"	17	41
	3/16"	17	41
	1/4"	17	17

f. Electrode type?	6010	17	23
	7018	17	64
g. Position of test?	flat	17	58
	vertical	17	52
	horizontal	17	41
	overhead	17	29
h. How is specimen tested:	guide bend	17	35
	X-ray	17	11
	dye penetrate	17	0
	visual	17	41

4. Please explain the type of business in which you specialize:

Please write additional notes or comments below:

APPENDIX D

WELDING TASK ARTICULATION COMMITTEE

Vince Denova
Welding Instructor
Community College of Allegheny County
Center-North
111 Pines Plaza
1130 Perry Highway
Pittsburgh, PA 15237
366-7000

Angelo Tierno
Director of Vocational Technical Programs
Community College of Allegheny County
Center-North
111 Pines Plaza
1130 Perry Highway
Pittsburgh, PA 15237
366-7000

Valentine Dominick
Welding Instructor
Parkway West Technical SChool
R.D. #1 Box 424
Oakdale, PA 15071
923-1772

Robin Young
Welder
Ionics Inc.
Rts. 519 & 50
Bridgeville, PA 15017
343-1040

Robert Kinsey
Project Coordinator
Welding Instructor
Community College of Allegheny County
Center-North
111 Pines Plaza
1130 Perry Highway
Pittsburgh, PA 15237
366-7000

APPENDIX E

CCN STUDENT PERFORMANCE FORMS

WELDING I - 72-101 - COMMUNITY COLLEGE OF ALLEGHENY COUNTY - CENTER-NORTH

STUDENT NAME _____ SOCIAL SECURITY NUMBER _____

School Stamp

This is to certify that the above named student has demonstrated proficiency in the following tasks:

Compentency Task	Date Completed	Instructor
1. Set up portable or stationary oxy-fuel equipment		
2. Perform soap and water and/or submerged leak test and repair gas welding equipment		
3. Change oxygen, acetylene or MAPP gas cylinders		
4. Clean welding and cutting tips on oxy-fuel equipment		
5. Cut carbon steels with oxy-acetylene equipment		
6. Take a 50 question written test on safety and theory of oxy-acetylene equipment		
7. Running continuous beads, break - restart - fill crater		
8. Chip slag using chipping hammer		
9. Padding in the flat position on carbon steel		
10. Set up and tack weld open butt joints		
11. Set up and make an open butt weld in the flat position		
12. Take a 50 question test on arc welding safety, machines, accessories and currents		
13. Set up and tack weld lap joints		
14. Set up and make a lap weld in the flat position		
15. Running continuous beads, break - restart - fill crater		

Compentency Task	Date Completed	Instructor
16. Set up and make an open butt weld in the flat position		
17. Set up and make a lap weld in the flat position		
18. Padding in the horizontal position on carbon steel		
19. Padding in the horizontal position on carbon steel		
20. Take a 50 question test on the safety and theory of operating shielded metallic arc welding, welding positions, electrodes, and currents		

School Official Signature

Student Signature

STUDENT RECORD - CLASS ROSTER

DATE:

1	Set up portable or stationary oxy-fuel equipment
2	Perform soap and water leak test
3	Change oxyge, acetylene cylinders
4	Clean welding and cutting tins
5	Cut carbon steels with oxy-acetylene equipment
6	Run continuous beads; stop - restart every 2 inches - fill crater
7	Chip slag w/ hammer
8	Padding (list position)
9	Tack plates (butt joint)
10	Weld butt joints (flat position)
11	Tack weld plates - lap joint flat position
12	Weld lap joints - flat position
13	Continuous beads - break - restart every 2 3 inches - fill crater
14	Open butt - weld - flat position
15	Lap weld - flat position
16	Padding - horizontal position Vertical plate E-6012
17	Padding - horizontal position Vertical plate E-7018
*	Written quiz I
*	Written quiz II
*	Written quiz III

APPENDIX F

Parkway West Area Technical School

R.D. 1 BOX 424, OLD STEUBENVILLE PIKE

OAKDALE, PENNSYLVANIA 15071

TELEPHONE (412) 923-1772

June 28, 1979

Dr. Carroll A. Curtis, Director
Research Coordinating Unit For Vocational Education
Commonwealth of Pennsylvania
Department of Education
Box 911
Harrisburg, PA 17126

Dear Dr. Curtis:

During the 1978-79 academic year, Parkway West Technical School expressed its commitment to competency-based instruction by actively participating with the Community College of Allegheny County, College Center-North, in the articulation of welding programs at the two institutions.

Continued funding during the 1979-80 academic year will enable College Center-North to bring to closure Welding articulation and initiate Heating and Air Conditioning articulation with Parkway West. In ensuing years, we hope to be able to articulate our Applied Electronics and Auto Mechanics programs with those at CCN. Professional development training in competency-based instruction for Parkway West faculty, available through Center-North's Vocational/Technical Division, will be actively encouraged.

If I may provide you with any additional indication of our commitment to task level articulation, please call or write.

Sincerely,

Joseph Hoffman

Joseph Hoffman, Principal
Parkway West Technical School

bgk

JOHN C. GARLICK, Director

JOSEPH L. HOFFMAN, Assistant Director

ARMANDO M. DI GIOVINE Assistant Director

CCAC COMMUNITY COLLEGE OF ALLEGHENY COUNTY

COLLEGE CENTER NORTH

June 27, 1979

Dr. Carroll A. Curtis, Director
Research Coordinating Unit for Vocational Education
Commonwealth of Pennsylvania
Department of Education
Box 911
Harrisburg, PA 17126

Dear Dr. Curtis:

College Center - North, the vocational/technical component of the Community College of Allegheny County and a pioneer in innovative and far-reaching vocational programming in Western Pennsylvania, is fully committed to competency-based vocational education, both in theory and in practice, and has been implementing competency-based programming of many kinds during the past three years.

The project (July, 1978 - June, 1979) to task level articulate welding programs at CCN and Parkway West Technical School which was funded out of your office represented a major advancement in our competency-based educational programming and one of the most successful to date.

All goals of the one-year continuation project being requested in the attached proposal are fully supported by the administration of CCN. The goals to articulate programs in Applied Electronics, Secretarial Science and Auto Mechanics in the period extending from July, 1980 - June, 1984 likewise fit within our broad institutional goals, as does the overall plan for total competency-based instruction in programs in the Vocational/Technical Division.

Illustrative of CCN's support of and commitment to task level articulation, a number of our administrators have already participated in local, state and regional conferences on the subject and during the 1979-80 academic year we plan to provide staff development training to all concerned Vocational/Technical faculty and to continue it in future years.

My appreciation for the opportunity to work with your office during the past year. Call me at (412) 366-7000 if I may be of any help.

Sincerely yours,

Joseph Brimmeier

Joseph Brimmeier
Assistant to Executive Dean

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JUNIOR COLLEGES
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